

SURVEY REPORT
OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION



FISH MANAGEMENT SURVEY AND RECOMMENDATIONS
FOR
LONE CHIMNEY LAKE
2025

SURVEY REPORT

State: Oklahoma

Project Title: Lone Chimney Lake Fish Management Survey Report

Period Covered: This report discusses survey results from 2025.

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Kaw Lake

ABSTRACT

Lone Chimney was surveyed using boat electrofishing for Largemouth Bass during spring of 2025. DNA was collected from LMB to evaluate the geneflow from the Florida Largemouth Bass being stocked in the lake each year.

Current Management Practices

Monitoring of Heavily Utilized Black Bass Populations

Largemouth bass was the most sought after species in Oklahoma according to the most recent angler survey. The NCR has high profile largemouth bass fisheries that are utilized by both recreational and tournament anglers. The introduction of Florida Largemouth Bass genetics into largemouth bass populations can be a valuable management tool to improve growth rates. These black bass populations require monitoring for constituent interaction, potential future regulation changes, and evaluation of genetic contribution of FLMB. Florida Largemouth Bass (FLMB) were stocked initially in Lone Chimney since 1985, one year after impoundment then not again till 2001. These fingerling stockings continued for 6 more scattered stockings until 2016 when a new approach was taken to introducing FLMB genetics in more northern latitudes. Larger cull brooders from Durant Fish Hatchery were stocked in ranging at first 6in in size to large adults >16in and finally settled on 9in two year old cull brooders. Evaluating the gene flow in the population is important in determining the success of the stockings and growth of the population over time.

2025

Bass Bass were sampled using pulsed DC current using an EST. A total of 18 sites were randomly sampled collecting 83 Largemouth Bass (LMB) an additional 7 fixed sites were sampled to collect enough DNA fish to meet our DNA sample requirements with a total of 78 LMB collected. Fish were measured (mm), weighed (g) and otoliths were taken from 151 individuals for aging purposes. Fin clips were collected from 100 individuals for DNA analysis.

Catch Per Unit Effort (CPUE) was 27.67 with a C.V. of .15. Resulting in no significant difference from the 2019 (CPUE = 21.53, C.V. = .15) sample, but a significant decrease from 2022 (CPUE = 43.95, C.V. = .09). Length frequencies from 2022 and 2025 resemble each other with a wide distribution of sizes found in the lake (Figure 1). Proportional Size distributions (PSD) (Table 1) and Relative Weights ($W_r = 90.53$) were not significantly different from 2019 or 2022. Age frequencies show the two large year classes from 2019 (2- and 4-year-olds) are still present in the 2025 sample and in large proportions for older age

classes. It also appears the large year class of 2-year-olds from the 2022 sample is still in large abundances as they have now reached 5 (Figure 2). Mean length at age significantly increased for age 3 LMB compared to 2022 and age 2 LMB were still significantly larger than in 2019 (Figure 3, Table 2). No other mean length at age had a significant change positive or negative. LMB did reach preferred size at 4 years compared to 5 years in 2022 returning to what was observed in 2019. Von Bertalanffy Growth Equations found L_{∞} was significantly lower compared to 2022 but not 2019, this is most likely due to the large year classes reaching end of life and topping out their growth bringing L_{∞} more inline with what is seen in the lake (Figure 3, Table 3). This year 220 FLMB were stocked ranging in size less than 5" (Table 4).

The Largemouth Bass in Lone Chimney appears to be doing well. Catch rates rank in the 45th percentile compared to other lakes in the North Central Region and growth was in the 52nd percentile for 4-year-old LMB. The large year classes have allowed there to be a larger percentage of older fish in the population. As of time of writing DNA results have not returned for analysis. Continued monitoring gene flow should continue as long as we continue stocking FLMB. While we have now seen what max age fish can get to in Lone Chimney it should be noted that the largest LMB sampled in any of the samples was from the 2025 sample at 3440g or 7.6lbs.

RECCOMENDATIONS

1. Request Florida Largemouth Bass (FLMB) cull brooders be stocked in Lone Chimney in 2026. Pending DNA results from the 2025 sample.
2. Evaluate LMB populations in 2028 for DNA analysis.

Figures

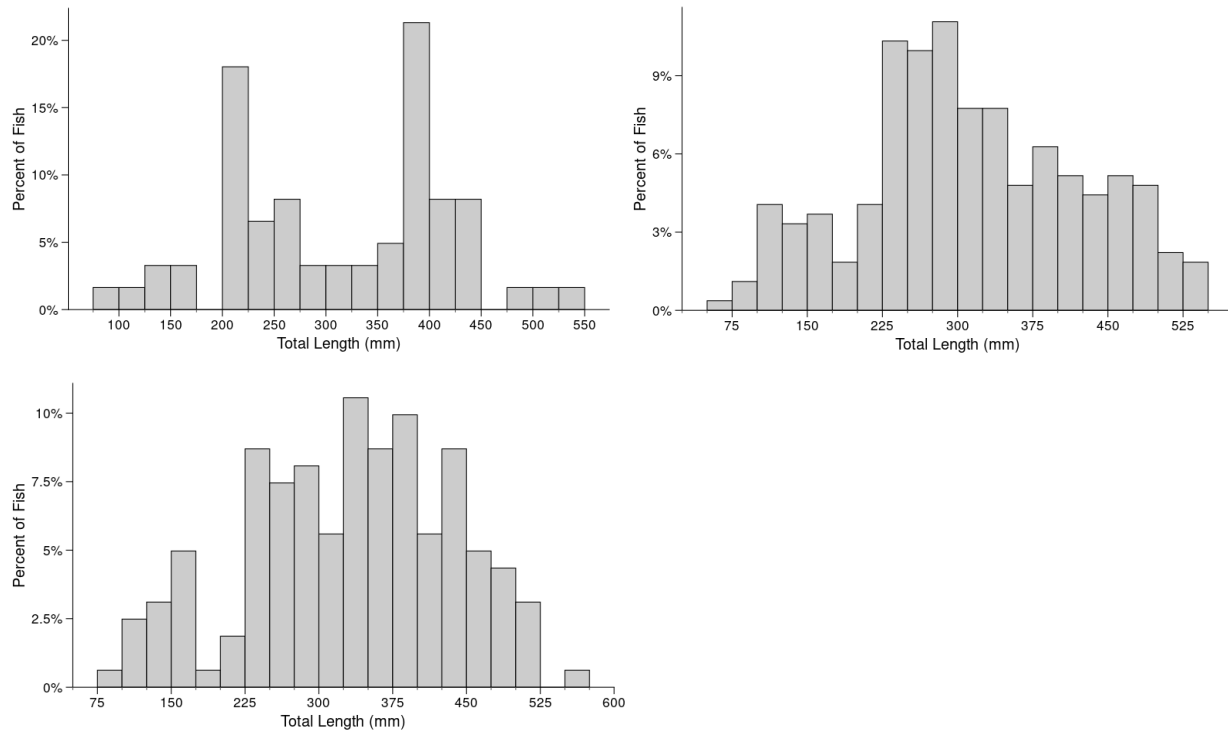


Figure 1. Length frequencies of Largemouth Bass in Lone Chimney Lake from 2019 (top left), 2022 (top right) and 2025 (bottom left).

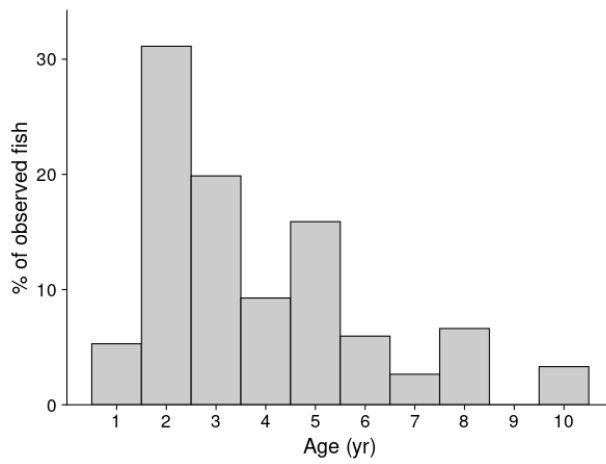
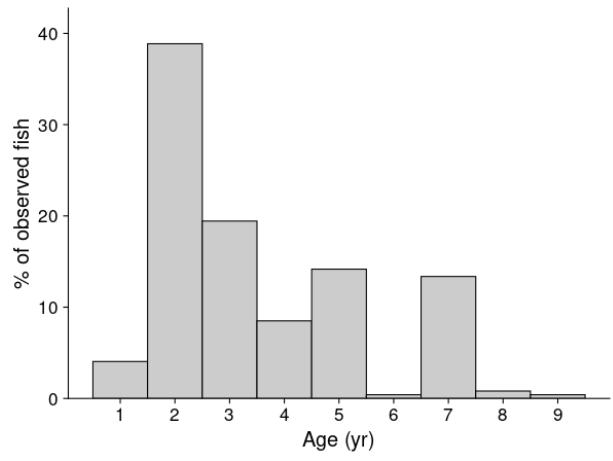
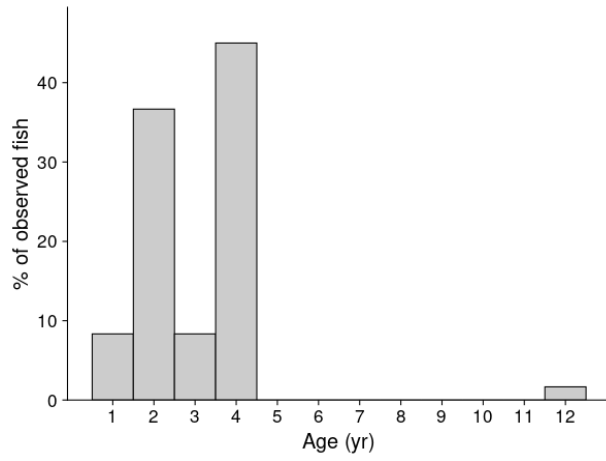


Figure 2. Age frequencies of Largemouth Bass in Lone Chimney 2019 (top left), 2022 (top right) and 2025 (bottom left).

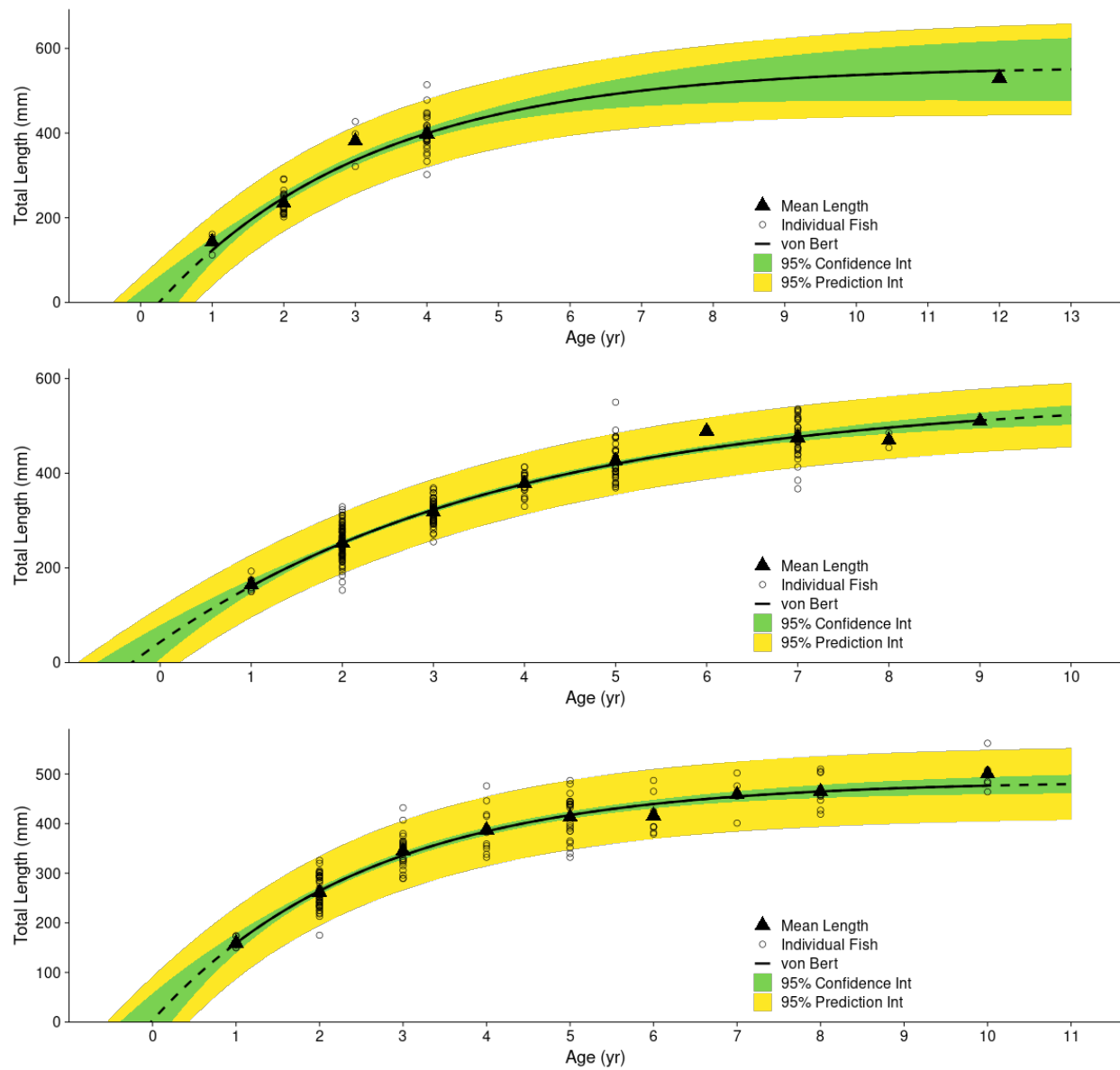


Figure 3. Mean Length at age and von Bertalanffy growth equation of Largemouth Bass in Lone Chimney sampled in 2019 (top), 2022 (middle) and 2025 (bottom).

Tables

Table 1. Proportional Size Distributions of Largemouth Bass in Cleveland Lake.

Year	PSD	PSD – P	PSD – M
2019	60± 18	47± 19	4± 7
2022	59± 9	33± 19	5± 4
2025	70± 10	41± 12	1± 3

Table 2. Mean Length-at-Age of Largemouth Bass in Cleveland Lake. Results are only from age classes that had at least 5 individuals age classes with fewer individuals were excluded from the table.

	Age-1	Age-2	Age-3	Age-4	Age-5	Age-6	Age-7	Age-8
2019	142.80± 16.58	234.05± 10.95	381.20± 33.97	398.63± 16.59	-	-	-	-
2022	164.50± 8.37	253.00± 6.68	317.94± 7.08	377.71± 9.67	425.89± 13.1	-	475.18± 14.12	-
2025	159.25± 6.46	261.43± 9.24	344.70± 11.12	387.29± 21.45	413.25± 17.12	415.56± 24.9	-	464.70± 19.76

Table 3. Theoretical maximum length (L_{∞}) of Largemouth Bass in Lone Chimney Lake.

	L_{∞}	Lower 95% CI	Upper 95% CI
2019	558.03	488.480	653.062
2022	562.17	526.715	614.508
2025	486.36	464.408	514.655

Table 4. Stocking history of Florida Largemouth Bass in Lone Chimney Lake

Year	Size (Inches)	Number Stocked
1985	1.5"	5,706
2001	3"	550
2002	3"	11,000
2002	2.75"	11,000
2003	3"	11,000
2005	3"	11,000
2007	3"	11,000
2009	1.5"	55,000
2016	6"	210
2017	Adult	200
2017	6"	220
2018	9.25"	250
2019	9"	200
2020	6"	200
2021	9.75"	205
2022	9.63"	150
2022	5"	104
2023	4"	210
2024	-	136
2025	<5"	220